Introductory Psychology
Part One 2nd Edition
Psychology Notes
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Hello, thanks for downloading my free *Introductory Psychology - Part One (2nd ed.)* psychology notes eBook. These notes were taken by me while I was taking college psychology courses. I have edited and reformatted them so that they are easier to follow. This eBook covers topics that are taught in most college level introductory psychology courses.

You’ll see some graphic icons in this eBook.

**This icon indicates “terms and definitions” that are related to the section or paragraph you’re currently reading.**

**This icon indicates “review questions”. At the end of each section, I have included a few “review questions” for you to quiz yourself on.**

Just a few more things:

1) Please note that the purpose of these notes are to guide you. They are not a “system” or something that will guarantee you a pass in your psychology courses.

2) The contents of these psychology notes are based on the book Myers in Modules by David G. Myers.

Lastly, I would like to ask you kindly not to redistribute this eBook. If you’d like to share this with a friend, please direct him/her to my website at http://www.PsychologyNotesHQ.com. It’s FREE to download this eBook from my website.

Once again, thanks for downloading my free psychology notes eBook. I hope these notes will help you with your introductory psychology course. Please feel free to email me your comments at Alexandra@PsychologyNotesHQ.com.

Alexandra
June, 2014
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What is Psychology?

- Many disciplines, from physiology to philosophy.

- In its early years, psychology was defined as the science of mental life.

- Major focus was on the internal experiences of consciousness, sensations, feelings, and thoughts psychologists relied upon people’s reports of their conscious experiences in response to various stimuli.

- 1920 – 1960: American psychologists redefined psychology as the science of behavior.

- Since the 1960s, psychology has recaptured its initial interest in conscious and unconscious mental processes.

- Psychology = science of behavior and mental processes.

- Behavior is anything an organism does.

- Mental processes are the internal subjective experiences we infer from behavior.

4 goals of psychology:

1. To describe - to observe and measure, behavior and mental processes.

2. To explain - to formulate a theory, which is a coherent group of assumptions and propositions that can explain the data.

3. To predict behavior and mental processes.

4. To apply knowledge to promote human welfare.

What were they thinking?

- Plato: character and intelligence are largely inherited and that ideas are inborn.

- Aristotle: nothing in the mind that does not first come from the external world through the senses.

- John Locke: the mind is blank at birth and that knowledge comes through sense experience.

- Gottfried Leibniz: knowledge is innate and not dependent on sense experience.

- Descartes: some ideas are innate.

Who are they?

- Wilhelm Wundt, both a physiologist and a philosopher, founded the first psychology lab at the U of Leipzig in Germany in 1879.

- Ivan Pavlov was a Russian physiologist.

- Sigmund Freud was an Austrian physician.

- Jean Piaget was a Swiss biologist.
Different Perspectives of Psychology

Neuroscience
- How the body and brain create emotions, memories, and sensory experiences
- Combines physiology, especially the physiology of the brain, with psychology, the study of mental processes and behavior, and draws as well from the field of chemistry
- The underlying assumption of neuroscience is that for every behavior, feeling, and thought, a corresponding physical event takes place in the brain
- Roger Sperry – his research suggests that the two halves of the brain perform different functions (split brain)

Evolutionary
- How nature selects traits that promote the perpetuation of one’s genes

Behavior genetics
- How much our genes, and our environment, influence our individual differences
- Studies the mechanisms by which observable responses are acquired and modified in particular environments

Psychodynamic
- How behavior springs from unconscious drives and conflicts
- The underlying assumption is that unconscious forces are important influences on human
- Psychoanalysis
- Sigmund Freud’s assumptions were that human beings are born with unconscious drives that seek some kind of outlet or expression from the very start
- Repressed drives continue to demand some kind of expression or satisfaction → manifested indirectly

Behavioural
- How we learn observable responses
- The key assumption is that if psychology is to be a science, it must study only that which is observable, namely behavior
- Study behavioral responses and the way these responses are influenced by stimuli in the environment
- Edward Thorndike proposed the law of effect
- When a behavior is followed by satisfaction, it is “stamped in” and when it is not followed by satisfaction, it is “stamped out”
- John B. Watson launched behaviorism, a philosophy of psychological study which holds that only observable behavior is the proper subject for psychological investigation

Cognitive
- How we encode, process, store, and retrieve information
- The study of cognition, the ways we process or transform information about the world around us
- Cognition includes the mental processes of thinking, knowing, perceiving, attending, remembering, and the like
- How we organize, remember, and understand everything we experience

Social-cultural
- How behavior and thinking vary across situations and cultures
**Subfields of Psychology**

<table>
<thead>
<tr>
<th>Subfield</th>
<th>What is it about?</th>
</tr>
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<tbody>
<tr>
<td>Physiological Psychology</td>
<td>Explore the links between biology and behavior</td>
</tr>
<tr>
<td>Developmental Psychology</td>
<td>Study the process of physical, mental and social changes throughout the life cycle</td>
</tr>
<tr>
<td>Experimental Psychology</td>
<td>Study sensation and perception, learning and memory, motivation and emotion</td>
</tr>
<tr>
<td>Personality and Social Psychology</td>
<td>Study how individuals are influenced by enduring inner actors (personality psychology) and how they influence and are influenced by other people (social psychology)</td>
</tr>
<tr>
<td>Clinical Psychology</td>
<td>• Study, assess, and treat people with psychological difficulties</td>
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<td></td>
<td>• Do not diagnose physical causes of psychological disorders and prescribe drugs</td>
</tr>
<tr>
<td></td>
<td>• Administer tests, provide psychotherapy, manage a mental health program, or do research and training</td>
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**Research Strategies**

- Our everyday thinking is limited not only by our after-the-fact common sense but also by our human tendency toward overconfidence
- As scientists, psychologists approach the world of behavior with a curious scepticism. They persistently ask two questions: what do you mean? How do you know?
- Putting a scientific attitude into practice requires not only scepticism but also humility because we may have to reject our own ideas
- Critical thinking examines assumptions, discerns hidden values, evaluates evidence, and assesses conclusions

- Hindsight bias – the tendency to believe, after learning an outcome, that one would have foreseen it.
The Scientific Method

- A theory is useful if it:
  - Effectively organizes a range of self-reports and observations.
  - Implies clear predictions that anyone can use to check the theory or to derive practical applications.

- Key steps in the scientific methods:

1. Specify the problem
   + The hypothesis must be stated in a clear, focused, and testable manner
2. Design the study
   + Requires creating operational definitions of key elements of the study
   + An operational definition is a definition stated in terms that can be observed and measured → prevent bias
   + Single-blind procedure: the subjects are kept uninformed about the hypothesis of the study so that this knowledge does not unconsciously affect their behavior
   + Double-blind procedure: both the subjects and the researcher analyzing the data of the study are kept uninformed about the hypothesis → prevent experimenter bias
3. Collect the data
4. Report the conclusions
   + Publishing a study allows other researcher to examine a study for errors, biases, and faulty logic

Observation and Description

Case Study

- Individual cases are studied in great depth and detail and used to suggest what is true to us all
- The extensive study of all or part of the life history of an individual
- 3 major uses:
  1. Understand and help people with psychological disorders
     • Know what sort of person the patient is
     • What sort of difficulties he or she is experiencing
     • How the patient’s difficulties developed
  2. A means of illustrating ideas and relationships in teaching
  3. An important research tool
     • Used to suggest theories or hypotheses about human behavior

- Pose questions but do not answer them → generate but do not confirm hypotheses
- Offer in-depth insights that may offer clues to what is true of others but if the case is atypical, they may mislead
Naturalistic Observation

- Observing and recording behavior in naturally occurring situations without trying to manipulate and control the situation
- A method of study in which:
  - Subjects are observed in their natural environments
  - The observer does not attempt to interfere with the natural behavior of the subjects
- In the best type of naturalistic observation, the subjects are not aware that they are being observed
- Does not explain behavior
- Enables study of behavior undisturbed by researchers. But the lack of control may leave cause and effect ambiguous
- Disadvantages:
  - Researchers have less control over what happens in the natural environment
  - More difficult to see the casual relationship among specific variables in a natural setting than in a laboratory → often used in conjunction with other methods
Experimentation

A research method in which an investigator manipulates one or more factors (independent variables) to observe the effect on some behavior or mental process (the dependent variable). By random assignment of participants the experimenter controls other relevant factors.

Experiments enable a researcher to focus on the possible effects of a single factor or two by holding constant those factors not being tested and manipulating the one or two being studied.

The clearest and cleanest way to isolate cause and effect.

If behavior changes when we vary an experimental factor, then we know that the factor is having an effect. Unlike correlational studies, which uncover naturally occurring relationships, an experiment manipulates a factor to determine its effect.

The goal of an experiment is to test an hypothesis.

Potential problems:
- Independent variables sometimes have unanticipated effects
- Generalization
- How far we can generalize the results of any one study?

Placebo – an inert substance or condition that may be administered instead of a presumed active agent, such as a drug, to see if it triggers the effects believed to characterize the active agent.

Hypothesis - a proposition about behavior or mental processes that is subject to empirical testing.

Independent variables - variables that are varied, or manipulated by the experimenter.

Dependent variables - variables that are theoretically affected by the independent variables.

A control group - a group of subjects who are not exposed to the independent variable being studied.

An experimental group - a group of subjects who are exposed to the independent variable.

Random assignment involves using a procedure such as flipping a coin or following a computer-generated list of random numbers to assign individual subjects to groups by chance so that each subject has an equal chance of being in any group in the experiment.

Double-blind procedure – an experimental procedure in which both the research participants and the research staff are ignorant about whether the research participants have received the treatment or a placebo. Commonly used in drug-evaluation studies.

When changes in one event are accompanied by changes in another, we say the two are correlated.

Correlation indicates the possibility of a cause-effect relationship, but it does not prove causation.
Statistical Reasoning

- Three measures of central tendency: mode, mean, median.
- When the sample averages are reliable and the difference between them is relatively large, we say the difference has statistical significance.
- Statistical significance indicates the likelihood that a result will happen by chance. It does not indicate the importance of the result.

- **Mode** – the most frequently occurring score in a distribution
- **Mean** – the arithmetic average of a distribution, obtained by adding the scores and then dividing by the number of scores
- **Median** – the middle score in a distribution; half the scores are above it and half are below it
- **Range** – the difference between the highest and lowest scores in a distribution
- **Standard deviation** – a computed measure of how much scores vary around the mean score

Review Questions

1. What are the 4 main goals of psychology?
2. Which subfield of psychology study the process of physical, mental and social changes through the life cycle?
3. What is hindsight bias?
4. What is the false consensus effect?
5. What is the best research strategy to isolate cause and effect?
6. What is a control group?
7. What are the 3 measures of central tendency in statistical reasoning?
Neural Systems

Neurons and Neural Impulses

- Each neuron consists of a cell body (soma) and its branching fibres (dendrites).
- A neuron fires an impulse when it receives signals from sense receptors. The impulse, called the action potential, is a brief electrical charge that travels down the axon.
- The fluid interior of a resting axon has an excess of negatively charged ions, while the fluid outside the axon membrane has more positively charged ions. This positive-outside/negative-inside polarization is called the resting potential.
- The axon’s membrane is selectively permeable – the positive sodium ions cannot pass through the gates.

- When a neuron fires, the first bit of the axon open its gates and the positively charged sodium ions flood through the channel. This depolarizes that part of the axons, causing the axon’s next channel to open, and then the next...
- During the refractory period, the neuron pumps the positively charged sodium atoms back outside. Then it can fire again.
- Some signals are excitatory and some signals are inhibitory.
  - If excitatory signals minus inhibitory signals exceed a minimum intensity, called the threshold, the combined signals trigger an impulse.
  - Increasing the stimulus above the threshold will not increase the impulse’s intensity. The neuron’s reaction is an all-or-none response.

A strong stimulus can trigger more neurons to fire and to fire more often.

- When the action potential reaches the axon’s end, it triggers the release of chemical messengers, called neurotransmitters. The neurotransmitter molecules cross the synaptic gap and bind to receptor sites on the receiving neuron. For an instant, the neurotransmitter unlocks tiny channels at the receiving site, allowing ions to enter the receiving neuron, thereby either exciting or inhibiting its readiness to fire.
- Agonists excite the neurons by mimicking a particular neurotransmitter or blocking its reuptake.
- Antagonists inhibit by blocking neurotransmitters or by diminishing their release.
- A blood-brain barrier enables the brain to fence out unwanted chemicals circulating in the blood, and some chemicals don’t have the right shape to slither through this barrier.
Review Questions

1. What is the action potential?
2. What is the resting potential?
3. What happens when a neuron fires?
The Nervous System

The Peripheral Nervous System

- 2 components:
  1) The somatic nervous system
     o Controls the movements of our skeletal muscles.
  2) The autonomic nervous system
     o Controls the glands and the muscles of our internal organs.
     o It is a dual system:
        1. The sympathetic nervous system
           • Arouses us for defensive action.
           • E.g. accelerate your heartbeat, slow your digestion, raise your blood sugar...etc.
        2. The parasympathetic nervous system
           • Calms the body, conserving its energy.

The Central Nervous System

- The spinal cord is an information highway connecting the PNS to the brain.
  o Ascending neural tracts send up sensory information.
  o Descending tracts send back motor-control information.
  o Reflex – a simple, automatic, inborn response to a sensory stimulus, such as the knee-jerk response.
    • The pain reflex pathway runs through the spinal cord and out, our hand jerks from the flame before your brain receives and responds to the information that causes you to feel pain.
    • Neural impulses involved in reflexes bypass the brain.
- The brain receives information, interprets it, and decides responses.

Review Questions

1. Which peripheral nervous system control the movements of our skeletal muscles?
2. How does the dual system of the autonomic nervous system work?
The Hormonal System

The Endocrine System

- The body’s “slow” chemical communication system; a set of glands that secrete hormones into the blood stream.
- The most influential endocrine gland is the pituitary gland. Under the influence of the hypothalamus, the pituitary gland regulates growth and controls other endocrine glands.

Hormones – chemical messengers, mostly those manufactured by the endocrine glands, that are produced in one tissue and affect another.

Review Questions

1. What are hormones?
2. Which organ is the most influential endocrine gland?
The Brain

Brain Structure

1. The Brainstem
   · The oldest part and central core of the brain, beginning where the spinal cord swells (the medulla) as it enters the skull.
   · Responsible for automatic survival functions.
   · The medulla controls heartbeat and breathing.
   · The reticular formation is a nerve network in the brainstem that plays an important role in controlling arousal.

2. The Thalamus
   · The brain’s sensory switchboard, located on top of the brainstem.
   · Receives information from all the senses except smell and routes it to the higher brain regions that deal with seeing, hearing, tasting, and touching.
   · Also receives some of the higher brain’s replies, which it then directs to the cerebellum and medulla.

3. The Cerebellum
   · The “little brain” attached to the rear of the brainstem.
   · Helps coordinate voluntary movement and balance.

4. The Limbic System
   · A doughnut-shaped system of neural structures at the border of the brainstem and cerebral hemispheres.
   · Associated with emotions such as fear and anger and drives such as food and sex.
   · Includes 3 components:
     1. The Amygdala
        o 2 almond-shaped neural clusters.
        o Influence aggression and fear.
     2. The Hypothalamus
        o A neural structure lying below the thalamus
        o Directs several maintenance activities, e.g. eating, drinking, body temperature.
        o Helps govern the endocrine system via the pituitary gland.
     3. The hippocampus
The Cerebral Cortex

- The intricate fabric of interconnected neural cells that covers the cerebral hemispheres.
- The body’s ultimate control and information processing centre.

Each brain hemisphere is divided into 4 regions or lobes:

1. The Frontal Lobes
   - Lying just behind the forehead
   - Involve in speaking and muscle movements and in making plans and judgements.
   - Motor cortex
   - Frontal lobe damage can alter personality, e.g. the Gage case.

2. The Parietal Lobes
   - Lying at the top of the head
   - Includes the sensory cortex
     - The more sensitive body region, the greater the area of the sensory cortex devoted to it.

- Glial cells – cells in the nervous system that are not neurons but that support, nourish, and protect neurons.
- Motor cortex – an area at the rear of the frontal lobes that controls voluntary movements.
- Sensory cortex – the area at the front of the parietal lobes that registers and processes body sensations.
3. The Occipital Lobes
   - Lying at the back of the head
   - Includes the visual areas, which receive visual information from the opposite visual field.

4. The Temporal Lobes
   - Lying roughly above the ears
   - Includes the auditory areas, each of which receives auditory information primarily from the opposite ear.

- Association areas – areas of the cerebral cortex that are not involved in primary motor or sensory functions.
  - They are involved in higher mental functions such as learning, remembering, thinking, and speaking.
  - The association areas in the frontal lobes enable us to judge, plan and process new memories.

- In response to changing stimulation, the brain can either rewire itself with new synapses or select new uses for its prewired circuits.
  - When one brain area is damaged, other areas may in time reorganize and take over some of its functions.
  - Children are born with a surplus of neurons. If an injury destroys one part of a child’s brain, the brain will compensate by putting other surplus areas to work.

- The split-brain research shows that the left hemisphere is adept at making quick, literal interpretations of language, the right hemisphere excels in making subtle inferences.

- Broca’s area – an area of the frontal lobe, usually in the left hemisphere, that directs the muscle movements involved in speech.
- Wernicke’s area – a brain area involved in language comprehension and expression; usually in the left temporal lobe.
- Plasticity – the brain’s capacity for modification.
- Split brain – a condition in which the two hemispheres of the brain are isolated by cutting the connecting fibers, corpus callosum, between them.
- Corpus callosum – the large band of neural fibers connecting the two brain hemispheres and carrying messages between them.
Did you know?

Aphasia is the impairment of language, usually caused by left-hemisphere damage either to Broca’s area or to Wernicke’s area.

- A lesion to Wernicke’s area produce a language disorder characterized by “nonsense” sentences. Sentences can be grammatically correct and speech itself is normal, but the sentences make no sense.
- A lesion to Broca’s area produced a language disorder characterized by slow and labored speech and poor articulation, making the words themselves difficult to understand. People with damaged Broca’s area also suffers from disrupt comprehension of language.

Review Questions

1. Which part of the brainstem controls heartbeat and breathing?
2. What is the function of the Thalamus?
3. What are the 3 components of the Limbic System?
4. What are the 4 regions of the brain hemisphere?
5. Which region of the brain hemisphere is related to hearing?
6. Which region of the brain hemisphere is related to vision?
Genetic influences on Behaviour

- A DNA molecule has 2 strands, forming a double helix, held together by bonds between pairs of nucleotides.
  - The sequence of the four nucleotide letters, A, T, G, and C, is virtually the same in all humans.

Natural Selection

- The principle that, among the range of inherited trait variations, those contributing to reproduction and survival will most likely be passed on to succeeding generations.

Behavior Genetics

- The study of the relative power and limits of genetic and environmental influences on behavior.

Twin Studies

- Identical twins are genetically identical
- Fraternal twins are genetically no closer than brothers and sisters, but they share a fetal environment.

Adoption Studies

- People who grow up together, whether biologically related or not, do not much resemble one another in personality.

Temperament Studies

- Temperament – a person’s characteristic emotional reactivity and intensity.
- Heredity seems to predispose human temperament differences.
- Temperament tends to remain stable throughout life.
- Heritability – the proportion of variation among individuals that we can attribute to genes. The heritability of a trait may vary, depending on the range of populations and environments studied.
- Heritability is not the extent to which an individual’s traits are genetically determined. Rather it is the extent to which variation among individuals is due to their differing genes. For any trait, heritability can vary, depending on the population and range of environments studied.
- Our genetic predispositions help explain our behaviors, but they do not determine them.
Review Questions

1. What is natural selection?
Environmental Influences on Behaviour

Aspects of the environment that influence personality:
- Prenatal environment
- Early learning experiences
- Peer influence
- Culture
- Gender

Prenatal Environment

- Compared with same-placenta identical twins, those who develop with separate placentas are somewhat less similar in their psychological traits.

Experience and Brain Development

- Experience helps develop the brain’s neural connections.
- Mark Rosenzweig and David Krech’s experiment:
  - Rats who lived in an enriched environment, which simulated a natural environment, usually developed a heavier and thicker brain cortex than those who lived in solitary confinement.
- Bryan Kolb and Ian Whishaw report that rats housed for 60 days in enriched environments showed brain weight increases of 7-10%, and the number of synapses mushroomed by about 20%.
- William Greenough discovered that repeated experiences modify a rat’s neural tissue at the very spot in the brain that processes the experience.
  - After the brain maturation provides us with an abundance of neural connections, experience preserves our activated connections while allowing our unused connections to degenerate.
  - The maturing brain is governed by a rule: Use it or lose it.

The brain’s development does not end with childhood.
Peer Influence

- Part of the similarity to peers may result from a “selection effect” as kids seek out peers with similar attitudes and interests.
- Howard Gardner – parents and peers are complementary.
  - Parents are more important when it comes to education, discipline, responsibility, orderliness, charitableness, and ways of interacting with authority figures.
  - Peers are more important for learning cooperation, for finding the road to popularity, for inventing styles of interaction among people of the same age.

Culture

- Prescribed, well-learned behaviours free us from self-preoccupation.
- Each cultural group evolves its own norms.
- Compared with the person-to-person differences within groups, the differences between groups are small.
- Within a larger culture, ethnic subgroups may differ in their behaviour and yet be influenced by the same underlying processes.

- Culture – the enduring behaviours, ideas, attitudes, and traditions shared by a large group of people and transmitted from one generation to the next.
- Norms – an understood rule for accepted and expected behaviour. Norms prescribe “proper” behaviour.
- Memes – self-replicating ideas, fashions, and innovations passed from person to person. Coined by the evolutionary psychologists.

Gender

- Differences between the sexes arise, genetically from their differing sex chromosomes and, physiologically, from their differing concentrations of sex hormones.
- 7 weeks after conception – anatomically indistinguishable from someone of the other sex.
- Your sex is determined by your 23rd pair of chromosomes, the sex chromosomes.
  - X chromosome – the sex chromosome found in both men and women. Females have two X chromosomes; males have one. An X chromosome from each parent produces a female.
  - Y chromosome – the sex chromosome found only in males. When paired with an X sex chromosome from the mother, it produces a male child.
- 4th and 5th prenatal months – different brain-wiring patterns for males and females develop under the influence of testosterone and the female’s ovarian hormones.

Genes and hormones help define gender, but environment plays a key role too.
• Although biologically influenced, gender is also socially constructed.
• **Social learning theory** – the theory that we learn social behaviour by observing and imitating and by being rewarded or punished.
• **Gender schema theory** – the theory that children learn from their cultures a concept of what it means to be male and female and that they adjust their behaviour accordingly.
  o One’s concept of maleness and femaleness influences one’s perceptions and behaviour.
  o Through language, dress, toys, and songs, social learning shapes gender schemas (concepts). Children then compare themselves with their concept of gender and adjust their behaviour accordingly.

**Other research findings:**

- Robert Plomin and Denise Daniels – two children in the same family are on average as different from one another as are pairs of children selected randomly from the population.
- Sandra Scarr – parents should be given less credit for kids who turn out great and blamed less for kids who don’t.

**Review Questions**

1. What are the 5 aspects of environment that influence personality?
2. What is the social learning theory?
3. What is the gender schema theory?
Prenatal Development and the Newborn

- By birth, infants are equipped with perceptual and behavioural abilities that facilitate their survival.
- Development psychology – a branch of psychology that studies physical, cognitive, and social change throughout the life span.

Conception and Prenatal Development

- Women are born with all the immature eggs they would ever have.
- Men begin producing sperm at puberty and the process continues 24 hours a day for the rest of their lives.
- Sperms release digestive enzymes that eat away the egg’s protective coating, allowing a sperm to penetrate.
  - As soon as one sperm begins to penetrate, the egg’s surface blocks out the others.
  - Fingerlike projects sprout around the successful sperm and pull it in.
  - The egg nucleus and the sperm nucleus fuse and become one.

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<thead>
<tr>
<th>Stage</th>
<th>Period</th>
<th>Details</th>
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| Zygote | Conception to 2 weeks | - It enters a 2-week period of rapid cell division and develops into an embryo.
- Fewer than half of zygotes survive beyond the first 2 weeks.
- Within the first week, when the cell division had produced a zygote of some 100 cells, the cells began to differentiate.
- The zygote’s outer part attaches to the uterine wall, forming the placenta, through which nourishment passes.
- The inner cells become the embryo. |
| Embryo | 2 weeks through 8 weeks | - Organs begin to form and function.
- Heart begins to beat and liver begins to make red blood cells. |
| Fetus | 9 weeks to birth | - By the end of the sixth month, organs such as the stomach are sufficiently formed and functional to allow a prematurely born fetus a chance of survival.
- Fetus is responsive to sound. |
Newborn

- Newborns come equipped with reflexes ideally suited for survival.
- New technology discovered:
  - We are born preferring sights and sounds that facilitate social responsiveness.
  - Newborns turn their heads in the direction of human voices.
  - They gaze longer at a drawing of a facelike image than at a bull’s-eye pattern.
  - They prefer to look at objects 8 to 12 inches away.
- Within days of birth, our brain’s neural networks were stamped with the smell of our mother’s body.
- Habituation – decreasing responsiveness with repeated stimulation. As infants gain familiarity with repeated exposure to a visual stimulus, their interest wanes and they look away sooner.

Review Questions

1. What is developmental psychology?
2. At which prenatal stage do organs begin to form and function?
3. What is rooting reflex?
Infancy and Childhood

Physical Development

Brain Development

- After birth, the neural networks that eventually enabled you to walk, talk, and remember had a wild growth spurt. Fiber pathways supporting language and agility continue developing into adolescence.
- The lack of neural connections helps explain why our earliest memories seldom predate our third birthdays.

Motor Development

- The sequence of physical development is universal.
  - Roll over → Sit unsupported → Creep on all fours → Walk
  - These behaviors reflect a maturing nervous system.
- There are individual and cultural differences in the timing of this sequence.

Cognitive Development

- Jean Piaget revolutionized our understanding of children’s minds.
  - A child’s mind is not a miniature model of an adult’s.
  - A child’s mind develops through a series of stages.
  - The driving force behind this intellectual progression is our unceasing struggle to make sense of our experience.
  - Two concepts of how we use and adjust our schemas: assimilation and accommodation.

- Schema – a concept or framework that organizes and interprets information.
- Assimilation – interpreting one’s new experience in terms of one’s existing schemas.
- Accommodation – adapting one’s current understandings (schemas) to incorporate new information.

- Piaget described cognitive development in 4 stages:
  1. Sensorimotor Stage
  2. Preoperational Stage
  3. Concrete Operational Stage
  4. Formal Operational Stage
<table>
<thead>
<tr>
<th>Typical Age Range</th>
<th>Description of Stage</th>
<th>Developmental Phenomena</th>
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<tbody>
<tr>
<td>Birth to nearly 2 years</td>
<td><strong>Sensorimotor stage</strong></td>
<td>- Object permanence</td>
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<td></td>
<td>- Experiencing the world through senses and actions</td>
<td>- Stranger anxiety</td>
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<td></td>
<td>- Babies takes in the world through their sensory and</td>
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<td></td>
<td>motor interactions with objects.</td>
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<td></td>
<td>- What is out of sight is out of mind.</td>
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<tr>
<td>About 2 to 6 years</td>
<td><strong>Preoperational stage</strong></td>
<td>- Pretend play</td>
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<td></td>
<td>- Representing things with words and images but</td>
<td>- Egocentrism</td>
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<tr>
<td></td>
<td>lacking logical reasoning</td>
<td>- Language development</td>
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<td></td>
<td>- Children learn to use language but do not yet</td>
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<td></td>
<td>comprehend the mental operations of concrete logic.</td>
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<td></td>
<td>- Children lack the concept of conservation – the</td>
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<td></td>
<td>principle that properties such as mass, volume, and</td>
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<td></td>
<td>number remain the same despite changes in the form of</td>
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<td></td>
<td>objects.</td>
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<td></td>
<td>- Children are egocentric.</td>
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<td></td>
<td>- Children begin forming a theory of mind.</td>
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<tr>
<td>About 7 to 11 years</td>
<td><strong>Concrete operational stage</strong></td>
<td>- Conservation</td>
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<td></td>
<td>- Thinking logically about concrete events; grasping</td>
<td>- Mathematical transformations</td>
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<td></td>
<td>concrete analogies and performing arithmetical</td>
<td></td>
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<tr>
<td></td>
<td>operations</td>
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<tr>
<td>About 12 through adulthood</td>
<td><strong>Formal operational stage</strong></td>
<td>- Abstract logic</td>
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<td></td>
<td>- Abstract reasoning</td>
<td>- Potential for mature moral reasoning</td>
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</table>

- Object permanence – the awareness that things continue to exist even when not perceived.
- Egocentrism – in Piaget’s theory, the inability of the preoperational child to take another’s point of view.
- Theory of mind – people’s ideas about their own and others’ mental states – about their feelings, perceptions, and thoughts and the behaviour these might predict.

**Autism is marked by an impaired theory of mind.**
Social Development

- For many years, developmental psychologists reasoned that infants became attached to those who satisfied their need for nourishment.
  o Contradicted by Harlow’s “wire mother and cloth mother” studies.
  o Contact is a key to attachment.
  o Familiarity is another key to attachment.

- Some developmental psychologists believe that:
  o No precise critical period for becoming attached. Human attachment develops gradually. E.g. adoptive parents.
  o Children, unlike ducklings, do not imprint.

- Some infants show secure attachment – in their mother’s presence they play comfortably. When she leaves, they are distressed; when she returns, they seek contact with her.
  o Sensitive parents tend to have securely attached infants.

- Some infants show insecure attachment – they are less likely to explore their surroundings. When their mother’s leaves, they either cry loudly and remain upset or seem indifferent to their mother’s going and returning.

- Attachment – an emotional tie with another person; shown in young children by their seeking closeness to the caregiver and showing distress on separation.
- Critical period – an optimal period shortly after birth when an organism’s exposure to certain stimuli or experiences produces proper development.
- Imprinting – the process by which certain animals form attachments during a critical period very early in life. E.g. ducklings.
- Basic trust – a sense that the world is predictable and trustworthy; said to be formed during infancy by appropriate experiences with responsive caregivers.

Effects of Attachment

- Secure attachment predicts social competence
  o Erik Erikson said that securely attached children approach life with a sense of basic trust.
- Deprivation of attachment
  o Children become withdrawn, frightened, and even speechless.
  o The unloved often become the unloving.
  o A sluggish serotonin response has been found in abused children who become aggressive teens and adults.
- Disruption of attachment
  o Separated from their families, both monkey and human infants become upset and withdrawn and even despairing.
  o If placed in a more positive and stable environment, most infants recover from the distress of separation.
Self-Concept

- A sense of one's identity and personal worth.
- Charles Darwin: self-awareness begins when we recognize ourselves in a mirror.
- Beginning with the simple self-recognition, the child’s self-concept gradually strengthens. By school age, children start to describe themselves in terms of their gender, group memberships, and psychological traits.
- Children’s views of themselves affect their actions.
  - Children who form a positive self-concept are more confident, independent, optimistic, assertive, and sociable.

Child-Rearing Practices

There are 3 parenting styles:

1. Authoritarian parents
   - Impose rules and expect obedience.
2. Permissive parents
   - Submit to their children’s desires, make few demands, and use little punishment.
3. Authoritative parents
   - Both demanding and responsive.
   - Exert control by setting rules and explaining the reasons.
   - Research indicates that people given control over their lives become motivated and self-confident; those with little control tend to see themselves as helpless and incompetent.

Review Questions

1. Piaget believed that there are 4 stages of cognitive development. What are they?
2. What is assimilation?
3. What is accommodation?
4. What is object permanence?
5. Describe the behaviour of an infant who shows secure attachment.
6. Describe the behaviour of an infant who shows insecure attachment.
7. What is critical period?
Adolescence

The transition period from childhood to adulthood, extending from puberty to independence.

Physical Development

- Puberty:
  - Girls – 11 years old
    - Starts with breast development
    - Landmark is the first menstrual period (menarche)
  - Boys – 13 years old
    - Landmark is the first ejaculation.

Cognitive Development

Developing Reasoning Power

- During the early teen years, reasoning is often self-focused.
- Gradually, most achieve the intellectual summit that Piaget called formal operations.
- Adolescents become more capable of abstract logic.
- Adolescents’ ability to reason hypothetically and deduce consequences also enables them to detect inconsistencies in others’ reasoning and to spot hypocrisy.
Developing Morality

- Piaget believed that children's moral judgments build on their cognitive development.
- Kohlberg argued that as we develop intellectually we pass through as many as 6 stages of moral thinking, moving from the simplistic and concrete toward the more abstract and principled. He clustered the 6 stages into 3 basic level.

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>Preconventional morality</td>
<td>- Before age 9, most children have a preconventional morality of self-interest. They obey either to avoid punishment or to gain concrete rewards.</td>
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</tbody>
</table>
| Conventional morality        | - Cares for others and upholds laws and social rules simply because they are the laws and rules.  
                                            - Being able to take others' perspectives, adolescents may approve actions that will gain social approval or that will help maintain the social order. |
| Postconventional morality    | - Affirms people's agreed-upon rights or follows what one personally perceives as basic ethical principles.  
                                            - Appears mostly in the European and North American educated middle class, which prizes individualism.  
                                            - Critics contend that the theory is biased against the moral reasoning of those in communal societies and also against Western women. |

Social Development

Forming an Identity

- Identity – one’s sense of self; according to Erikson, the adolescent’s task is to solidify a sense of self by testing and integrating various roles.
- Adolescents usually try out different “selves” in different situations. This role confusion is resolved by the gradual reshaping of a self-definition that unifies the various selves into a consistent and comfortable sense of who one is.

Developing Intimacy

- Intimacy – in Erikson’s theory, the ability to form close, loving relationships; a primary developmental task in late adolescence and early adulthood.
- Women, being more interdependent, use conversation to explore relationships; men use it to communicate solutions.
- Women emphasize caring and provide most of the care to the very young and the very old.  
- Men emphasize freedom and self-reliance.  
- Gender differences in connectedness and other traits peak in late adolescence and early adulthood.
Erik Erikson contended that each stage of life has its own “psychosocial” task:

<table>
<thead>
<tr>
<th>Identity Stage</th>
<th>Issues</th>
<th>Description of Tasks</th>
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<tbody>
<tr>
<td>Infancy to 1 year</td>
<td>Trust vs. mistrust</td>
<td>If needs are dependably met, infants develop a sense of basic trust.</td>
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<tr>
<td>Toddlerhood (1 to 2 years)</td>
<td>Autonomy vs. shame and doubt</td>
<td>Toddlers learn to exercise will and do things for themselves, or they doubt their abilities.</td>
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<tr>
<td>Preschooler (3 to 5 years)</td>
<td>Initiative vs. guilt</td>
<td>Preschoolers learn to initiate tasks and carry out plans, or they feel guilty about efforts to be independent.</td>
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<tr>
<td>Elementary school (6 years to puberty)</td>
<td>Competence vs. inferiority</td>
<td>Children learn the pleasure of applying themselves to tasks, or they feel inferior.</td>
</tr>
<tr>
<td>Adolescence (teen years into 20s)</td>
<td>Identity vs. role confusion</td>
<td>Teenagers work at refining a sense of self by testing roles and then integrating them to form a single identity, or they become confused about who they are</td>
</tr>
<tr>
<td>Young adulthood (20s to early 40s)</td>
<td>Intimacy vs. isolation</td>
<td>Young adults struggle to form close relationships and to gain the capacity for intimate love, or they feel socially isolated.</td>
</tr>
<tr>
<td>Middle adulthood (40s to 60s)</td>
<td>Generativity vs. stagnation</td>
<td>The middle-aged discover a sense of contributing to the world, usually through family and work, or they may feel a lack of purpose.</td>
</tr>
<tr>
<td>Late adulthood (late 60s and up)</td>
<td>Integrity vs. despair</td>
<td>When reflecting on his or her life, the older adult may feel a sense of satisfaction or failure.</td>
</tr>
</tbody>
</table>

Review Questions

1. Describe Kohlberg’s 3 levels of morality.
Adulthood

Physical Changes

- Our physical abilities all crest by the mid-twenties.
- For women, the foremost biological sign of aging is menopause.
- Why do people eventually wear out?
  - One theory, proposed by evolutionary biologists, speculates that the answer relates to our survival as a species: we pass on our genes most successfully when we raise our young and then stop consuming resources.
  - Also, one we’ve fulfilled our gene-reproducing task, there are no natural selection pressures against genes that cause degeneration in later life.
- The body’s disease-fighting immune system weakens, making the elderly more susceptible to life-threatening ailments. However, due to a lifetime’s accumulation of antibodies, older people less often suffer short-term ailments.
- Aging slows our neural processing.
  - Brain regions important to memory begin to atrophy.
- Physical exercise enhances muscles, bones, and energy and stimulates brain cell development.
- Alzheimer’s disease is caused by a deterioration of neurons that produce the neurotransmitter acetylcholine.

Cognitive Changes

- Early adulthood is a peak time for some types of learning and remembering.
- Tests reveal that recognition memory is better for older adults early rather than late in the day.
- Right through our later years, we continue to diverge.

Aging and Intelligence

- Cross-Sectional Evidence for Intellectual Decline
  - Cross-sectional study – a study in which people of different ages are compared with one another.
  - When giving intelligence tests to representative samples of people, researchers consistently find that older adults give fewer correct answers than do younger adults.
  - Problem: it compares people not only of two different ages but of two different era. It compares generally less-educated people with better-educated people, people raised in large families with people raised in smaller families.
Longitudinal Evidence for Intellectual Stability

- Longitudinal study – research in which the same people are restudied and retested over a long period.
- Tests revealed that intelligence remained stable. On some tests, it even increased.
- Problem: those who survive to the end of the longitudinal studies may be bright, healthy people whose intelligence is least likely to decline.

Social Changes

Adulthood’s Ages and Stages

- The social clock varies from culture to culture and era to era.
- Life events are more important than one’s chronological age.
- Even chance events can have lasting significance because they often deflect us down one road rather than another.

Adulthood’s Commitments

- Freud defined the healthy adult as one who is able to love and work. Erikson agreed, observing that the adult struggles to attain intimacy and competence.
- Two basic aspects of our lives dominate adulthood:
  1. Love
  2. Work

Review Questions

- What is crystallized intelligence?
- What is fluid intelligence?